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**Testing possibilities:
on negotiating writing practices in a ‘postdigital’ age (tools and methods)**

The exponential growth of new media technologies presents opportunities and challenges for writers. Fast-paced change - featuring what can seem like perpetual updates of hardware and software - undermines the possibility of growing attached to particular tools and practices. Collaboration is key to social media and many of the new technologies, and not something that sits easily with the traditional image of the writer as someone working alone. This article considers how writers can negotiate the demands of a ‘postdigital age’. Adopting a teacher-practitioner stance, it proposes that the remediation of a writer’s own practice is key. As well as considering how a writer can work to remediate his or her own practice, whereby - as new challenges and opportunities arise - a writer looks to existing skills and prior experience and adapts or applies them in new contexts as part of a process of, in effect, collaborating with him or herself, this article begins to explore whether such remediation can be taught. An aim is to reach a new theoretical position on how individuals can approach the creative potential of writing in the 21st century and more effectively embrace existing and emerging opportunities provided by interactive digital technologies.

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Key words:

Creative writing, pedagogy, creative practice, new media technologies, remediation, digital literacy

Introduction

The creative opportunities provided to writers by interactive digital technologies are many, varied and growing. Books and chapters including Hayles’s (2008), Page and Bronwen’s (2011) and Krauth’s (2014) chart examples of ways in which writers can re-imagine publishing, content-making and dissemination. Such examples (which range from hypertext novels of the 1980s to 21st century web novels) represent a markedly different image of what it is to be a published writer.

Previously, a widely accepted publishing model - one which texts such as Woolf's *A Room of One's Own* (1918) and Connolly's *Enemies of Promise* (1949) helped establish - looked something like this: writer struggles in a state of isolation and, quite likely, poverty to produce (painstakingly by hand or on a typewriter) a sheaf manuscript; the sheaf manuscript is taken physically (perhaps by bus) to the publisher who turns the manuscript into a book and sells it via bookshops. Sylvia Townsend Warner's preface to her novel *Mr. Fortune's Maggot* (1978), for example, presents the author in 1918 as (too poor to afford a Times Book Club subscription) leaping out of bed in a moment of solitary inspiration in freezing winter conditions to write her novel. On finishing, 'I took the two copies, one for England and one for USA to Chatto and Windus myself. I was afraid to trust them by post. It was a very foggy day, and I was nearly run over'. Townsend Warner's emotional turmoil aside, this picture of the writing and publishing process is strikingly ordered, with the writer at one end, the reader at the other and the publisher in the middle holding a crucial, controlling position.

This traditional model of mainstream publishing is very linear. It is represented in Hall (2013: 11) as a set of boxes within a large arrow. Thus, in the model of publishing which larger, established publishing houses such as Chatto and Windus, or Penguin, Harper Collins, Random House, for example, have traditionally adhered to, 'Manuscript' goes to 'Editing and page make-up' then 'Proofs and plates' before 'Printing' after which the pages are assembled into 'Books' (Hall titles this diagram a 'Simplified linear workflow'). Feather (1988: 1) sums up the traditional mainstream publishing model still more succinctly as: 'AUTHOR > PUBLISHER > READER'.

In fact, alternative models have always existed. Williams (2010: 29-46), for example, describes how, in the 19th century, the British radical press functioned highly effectively outside the mainstream. Those with views considered too radical by the mainstream press could simply buy a hand press for between £10 and £15 and publish and distribute themselves; to avoid the government's stamp duties, one radical publisher printed on calico, arguing that the publication could not be taxed because it contained no paper (38). In Soviet Russia, widespread censorship resulted in the emergence of a literature termed 'samizdat' ('self-publishing'), whereby works considered politically subversive were published and disseminated 'in the manner of chain letters', that is, 'typed out in several copies, passed on to others, and then typed out again' (Hayward, 1983: 81-81). In the 1950s, after his work was rejected by a mainstream publisher, artist and poet Morris Cox set up the artisan Gogmagog Press, so that he could keep control of the entire commissioning and production process, producing sophisticated and highly illustrated books using equipment including converted photocopiers (Chambers, 1991: 11).

However, these are instances of individuals stepping aside from a mainstream model of publishing and embracing a separate model. The picture is not so straightforward today. Mainstream and alternative models have become entwined.

Below her 'Simplified linear workflow', Hall (11) gives 'An example of a changing workflow to accommodate many outputs'. Thus, in this more complex, up-to-date diagram, inputs – 'Text', 'Pictures', 'Figures' – go through production processes that add electronic tagging, for example, to the usual editing and design. In Hall's diagram, instead of a single output (a book), these inputs and processes result in outputs: 'ebook', 'Digital format', 'Print book' and 'Info into website'. As Squires (2013: 3) puts it, 'The traditional value chain, which traces the trajectory of intellectual property from author to reader, and where publishing activities such as editorial, marketing and design are all performed by the single entity of the publisher is being disrupted and disintermediated at every stage'.

New technologies re-position writer, publisher, bookseller and reader, shuffling their positions and encouraging overlap. According to the evolving 21st century publishing model, a writer could potentially be writing a new e-novel in the morning, putting one of his or her old codex books into an envelope ready to post to a buyer at lunchtime and responding to a print-on-demand request in the afternoon. A key change in the experience of being a writer falls in the area of marketing and publicity. Previously, for example, novelists relied on publishers to market their books. Maureen Duffy (2000: 90) and Philip Roth (1986: 4) point to a time when the consensus was, as Roth puts it, that 'writers should remain in the shadows'. Today, publishers and readers expect writers to actively engage in talking about and selling their work at literary festivals and - through all stages of the writing process - via the web and social media. The traditional publisher's model of 'AUTHOR > PUBLISHER > READER' no longer holds.

Whether it is to produce, publish or promote creative works, the ability to apply storytelling skills to the production of a range of types of texts and to move between types of writing for different modes of dissemination using different media technologies, often at speed and regularly, is, increasingly essential. 'For writers,' say Millard and Munt (2014: 101), 'this is a time of testing possibilities.' The use of 'testing' here is of note, as the word conjures both a spirit of experimentation and irritating difficulties.

Experimenting to discover existing and emerging opportunities provided by interactive digital technologies may involve buying new equipment and selecting new software. Time and effort have to be invested in becoming adept at using a new device, feature or piece of software – but, software and hardware date. Smart phones, tablets and computers regularly become obsolete. Hypertext novels, which seemed fixed as a new means of storytelling in the 1990s, are now little read (Mangen

and van der Weel, 2015). A piece of electronic literature may simply become within a short space of time ‘unplayable’ (Hayles: 39).

Collaboration is key to social media and many of the new technologies. It does not sit easily with the traditional image referred to of the writer as someone working alone. The collaboration that is an intrinsic part of social media adds a potentially exciting new dimension to the experience of writing. Harper speaks of how digital developments ‘produce and support opportunities for human interaction and interconnection, well beyond the local or regional geography of direct physical contact, at a pace of experience and level of convenience never before accomplished’ (2015: 8). However, these same developments can also generate a sense of isolation. Indeed, new technologies, says Gere (2012: 1), ‘exemplify the gap inherent in touch, the “inconceivable, small, ‘infinitesimal difference’” that separates us from each other in time and space’. In this 21st century atmosphere of ‘community without community’ (as Gere phrases it), interacting with others while holding on to a unifying voice that links various outputs can be a challenge. ‘As science and technology become ever more complex, as the speed of change accelerates,’ notes Huws (2014: 83-4), ‘there is an ever-increasing need for people who can think, as the cliché puts it, “outside the box”’ – yet, the conditions resulting from this change ‘are inimical to that very creativity.’

The expectation that writers develop ‘author platforms’ using combinations of social media such as Facebook, Twitter and blogs, argues Wilkins (2014), brings with it, as well as opportunities, costs for writers – ‘the tools used to develop a platform can lead to distraction, anxiety, self-blame and stasis: all of these are the enemy of resilient writing’ (68). A perceived need to devote time (throughout the day, over weekends) to promotional websites and social media can, Wilkins shows, hinder creativity and productivity.

Engaging with social media involves reading, and the experience of reading, too, is altered by new technologies. ‘[T]he traditional reading path for writing,’ notes Krauth (71-2), ‘is linear, chronological, and causative, while that for images is spatial, juxtapositional, and comparative. In multimodal productions, these reading paths intertwine with each other, and vary each other’s shapes and effects’ with imagination as the ‘glue’ that makes the meaning.

As we approached the end of the 20th century, the technology used to write with was still developing relatively slowly. Novelist Deborah Moggach (2000, vi) recalls how, after decades working on a typewriter, she upgraded to a computer in 1990 and, 10 years after that, found adapting to using the Internet similarly challenging. In the 21st century, new computers, mobiles and tablets with new specifications and functions are issued by manufacturers every few months. As indicated, it is not the case that a new publishing model will evolve and then remain fixed, available to be considered and understood at leisure. Software and hardware are changing too fast.

The ‘post’ in ‘postdigital’ (or, ‘post-digital’) is not ‘post’ as in ‘after’. Cramer (2014) describes how the term, when it was first coined in 2000, referred to a media aesthetics which opposes ‘digital high-tech and high-fidelity cleanness’ and how its use then broadened to mean, as well as a rejection of digital, a celebration of and desire to revive ‘old’ technology (for example, vinyl records might be used in place of CDs). The term broadened further and is now used to refer to a world in which, as Cramer frames it, the ‘disruption’ brought by digital technology has already occurred. Analogue and digital are blended; digital technologies are no longer new but, rather, ‘a fully assimilated factor by now treated as a given’ (Arrigoni, 2015). In the postdigital age, notes Harper (13), the technologies of the past 10 years have ‘actively refined and built upon digitalism’. ‘[W]e’re all postdigital now’ (Openshaw, 2015, 5).

The sheer range of options and opportunities can feel overwhelming, the demands ever-expanding. It can feel hard to keep pace. Yet writers and those working with text in the 21st century must stay engaged with and emerged in this fast-changing postdigital landscape, as it changes. A new kind of creative flexibility is necessary. This article proposes that key to this is the remediation of a writer’s own practice, whereby - as new challenges and opportunities arise - a writer looks to existing skills and prior experience and adapts or applies them in new contexts as part of a process of, in effect, collaborating with him or herself. Representing emergent findings, it is part of a broader, ongoing programme of research into how a writer can learn and develop skills necessary to work as ‘a multimodal writer’ and so ‘enabl[e] diverse activities and writing projects to inform and enrich each other’ (Barnard, 2015: 104). It brings an experiential perspective. Taking a practitioner-teacher stance, it considers remediation of practice in part through the prism of the author’s own creative process and output, using a discrete example of remediation in the author’s history as a case study. As well as considering a personal approach, this article considers whether it is possible to help others learn how to remediate their own practice.

Millard and Munt note (91), ‘There has been much discussion about the implications of digital technologies for reading and publishing via new platforms such as tablet computers and e-book readers. By contrast, there has been relatively little discussion about shifts in writing *practices* as a result of these technologies and processes.’ It is to be hoped that this article will, in addressing that gap, be helpful to arts practitioners, students and teachers of creative writing. It is hoped too that it will contribute to the consideration of creative writing as a research method, an area of enquiry that, although not yet well documented (Kroll and Harper, 2013:1), is growing.

In this postdigital age, multi-layered productions arrive and are disseminated thick and fast, sometimes via different pieces of hardware close to simultaneously (computer, phone and/or tablet, for example). Noting that ‘tools that had served well to fix horse-drawn carriages’ are unlikely to be of help ‘mending contemporary cars’ (2010, 7-8), Kress talks of a need to alter and re-shape our

toolkits to meet present needs, emphasizing, '*Resources* are constantly remade'. Kress is referring to semiotic resources. This article argues that *writerly* resources must also be constantly remade. That is, a writer must be able to use what he or she has already, drawing on existing skills and prior experience in order to apply them in current and future contexts and thus remediate his or her own practice.

Practitioner case study

The author's practice is characterized by an occupational eclecticism. From the outset, it has involved moving between different types of writing for different modes of dissemination. The range of outputs includes novels, creative non-fiction, print journalism and film and radio scripts (as examples see Barnard 1994, 1996, 2000, 2003, 2003a, 2004, 2005, 2008, 2011, 2015a). The author's practice has, then, involved from the outset 'shifts in writing *practices*' (as Millard and Munt phrase it). An early experience of working in radio led to consideration of the possibility of remediating practice and how this ability may be of value. Thus, consideration of how to effect shifts in writing practices has been under consideration for over three decades.

Magnetic tape. A childhood ambition had been to become 'a writer', specifically, a novelist. In 1985, a student commission to co-produce an experimental radio series, *The Friday Buzz* (Barnard and Haskel, 1985) for BBC Radio Merseyside could appear to have been a distraction. *The Friday Buzz* was a weekly magazine programme, with each week's broadcast comprising about half a dozen features. That is, it was radio rather than print; it was primarily non-fiction and news-based. Rather than staying in solitude at a writing desk, the work would involve - through a schedule of researching, recording and cutting material to tight weekly deadlines - moving between locations and working with interviewees, technicians, a co-producer and an executive producer. On the face of it, the prospect of working on radio programmes could not have been much further from a conventional perception of what it is to be a novelist.

Writers' tools have historically been simple and discreet. A complete story can be planned and completed with nothing more than a pen and paper. Typewriters hammer out words. Once a particular word processing package is mastered, computers too can be used by writers to just to hammer out words.

Today, much of the work making a radio programme can be done by one person on a computer. However, the commission to make *The Friday Buzz* was won in 1985. The equipment used looks old-fashioned to a 21st century eye. However – and this is key in the context of this article - the technology was at the time new to the author.

Those first experiences of radio remain vivid. Time was tight. It was necessary to consider quickly how to begin learning how to use the analogue radio equipment.

It can be tempting with new equipment to look for rules and follow them rigidly step-by-step, or secure someone to physically guide from the start of the creative process to the finish. It was important to be able to stand back from the equipment and try to anticipate what the affordances – or, opportunities and limitations provided by the technology – might be.

When staring for the first time at the recording equipment – an unwieldy reel-to-reel recording machine, known in the trade as a ‘Uher’ (the name of a main manufacturer); a bulbous microphone plus headphones plus leads – it was clear that logistics would impact the process of constructing narratives for broadcast.

With a printed story, a writer can take the reader from Torquay to Timbuctoo in a single sentence. For these radio programmes, trips – their number and distance - would be prescribed by practicalities such as cost and the sheer heft of the equipment (a Uher alone weighs about 3.5kg). The need for ‘actuality’ (sounds to contextualise, illustrate and enliven the spoken words, or, ‘recorded material that isn’t speech’ (BBC, 2008) would further limit where interviews could take place. An unnoticed striplight, for example, can, for its soft background hiss, ruin a recording.

Like the recording equipment, the editing suite was striking. The main piece of radio editing equipment in the 1980s was bulky, a wheel-borne trolley the size of a small desk. The reels between which the strips of magnetic tape wound were the size of dinner plates. After unwanted sections of sound had been marked with white pencil and cut out, the remaining sections of brown magnetic tape were fixed back together with strips of yellow. Getting to grips with razor blades and magnetic tape curled on editing trolleys seemed very strange initially. It was necessary to look elsewhere for strategies.

Jen Webb and Donna Lee Brien present the creative writing researcher as someone who takes a ‘*bricoleur*-bowerbird’ approach to gathering *material* for use in stories, suggesting that those engaged in writing fiction or creative non-fiction are when they are working a cross between a ‘bowerbird’, which seeks out all the blue things with which to make its nest, and a ‘*bricoleur*’, or, jack of all trades, who makes do with what’s available (2012: 198-201). The *bricoleur*-bowerbird approach can also be applied to gathering and deploying *techniques*.

Childhood experiences of sewing had previously proved useful in the process of considering how to tell stories. Experiments inventing and making clothes involved thinking about how different blocks of material could be sewn together to make a coherent and pleasing whole. Reading about the Russian filmmaker Sergei Eisenstein’s theory of montage, or, ‘assembly’ (Eisenstein, 2010), which explored how re-positioning the same blocks of moving image in different orders could affect resulting stories, had also proved useful when applied to the work of structuring narratives. Both these prior experiences were drawn on in the Radio Merseyside editing suite, when strips of magnetic tape were re-arranged to achieve different narrative effects. At the editing trolley, holding

a razor blade, lengths of magnetic tape over chairs and stuck to walls, the process of experimenting with the effects on meaning of different juxtapositions was informed directly by previous work making clothes and applying Eisenstein's theory of film montage to structuring written stories.

A key motivating factor from the outset at BBC Radio Merseyside, then, was the desire to learn how to remediate practice. It was helpful to look back in order move forwards creatively with new and challenging technology.

These early work in radio also led to consideration of the significance of touch and physical movement in the creative process. Holding a microphone at a height that was not too obtrusive for an interviewee was part of the process of thinking about the part he or she played as a character in the story. Sticking a strip of magnetic tape to a wall was part of the process of deciding where to position that segment of plot in the narrative.

Digital technologies cast spells and have 'magical qualities', writes Gere (2002: 15). They can seem remote and hard to get hold of. In *Electronic Literature*, Hayles (2008: 88) foregrounds the importance of 'focusing on the dynamics entwining body and machine together'. Angel and Gibbs (2013) too point to the importance of considering body and machine together, noting that 'new media technologies reintroduce an animism and dynamism that re-engage the movement and gestures of the body in the scenes of writing and reading, rendering these processes explicitly performative'. If we can feel we have physically got hold of new media technologies, then we can feel that we are performing them rather than being performed by them.

Thus, the combination at BBC Radio Merseyside of applying previous experience to unfamiliar technology and foregrounding physical actions in the learning experience proved central when considering later whether it might be possible to help others learn how to remediate practice.

A pedagogical response

Questions around how to embed new technologies in the classroom are prescient. Mihailidis and Cohen (2013) state that educators have a responsibility to help students learn how to negotiate challenges associated with social media such as content sharing, curation and the creation of public identities. As noted, the postdigital age has changed writers' experiences of publishing, content-making and dissemination. Yet in educational institutions, the humanities have been slow to embrace social media and new technologies which are central to this change. The creative writing classroom, for example, still tends to rely heavily on the workshop method (Taylor Suchy, 2013). 'Creative writing instruction needs to change,' says Dean Clark (2015: 61), arguing that it must add 'digital' to the prevalent 'legacy pedagogies,' even if that means, as Dean Clark describes, engaging with 'a host of technology and strategies that are not the slightest bit native to my experiences in the creative writing classroom' (63).

There are a number of barriers, then, to embedding new media technologies in the classroom, including the limits of the educator's own experience. Embedding technology and associated software in the classroom is not necessarily in and of itself beneficial. Indeed, introducing technology for its own sake can be frustrating, for student and educator alike. As noted, there is a vast array of options in terms of what technologies could potentially be introduced to the classroom, and inbuilt obsolescence to many of them. If a key aim is to help students future-proof their creative practice, teaching a specific technology could – if that technology becomes defunct – mean the students arrive at the end of their course with technical skills that are already out of date.

If an aspiring writer can be given help learning how to remediate his or own practice, regardless of the changes in technology that occur, this skill can last. One particular set of classroom exercises is of note here. It required students to produce data visualizations.

There could appear to be no link between radio programmes made with old technology and data visualizations involving, as will be outlined, Excel, the Internet and social media. The author's earlier experiences of remediating practice directly informed the approach taken to devising and actioning class exercises utilizing new media.

Data visualization. Data visualizations themselves are not new. As Neurath said in 1936 (30) when he was working to develop what he called an 'International Picture Language,' 'To most men the reading of long lines of numbers is a great trouble ... But pictures are an attraction'. Data visualizations do not necessarily involve special equipment. However, they are now closely associated with big data. The advent of big data has given new pertinence to data visualizations, which enables this wealth of data to be converted into discrete images – pie charts or bar graphs, for example - which convey meaning to readers. Data visualizations are particularly evident in the area of journalism, where a new area – data journalism – has been ushered in. Lev Manovich (2011) writes of the relevance of data visualisations, broadly, to all 'humanities, media studies and cultural institutions' for aiding understanding of observed patterns and seeing new patterns.

As part of an ongoing research project to test whether technology and associated software can be embedded in the classroom in ways that measurably help students achieve required learning outcomes (for discussion of select findings regarding use of Twitter, see Barnard, 2016), a set of data visualization exercises was devised. They were conducted with two groups of BA journalism students and one group of MA creative writing students at a UK university between the autumn of 2014 and the spring of 2016. The exercises were accompanied by evaluation sheets which invited students to indicate which learning objective the exercise had helped them with.

The individual learning objectives are not directly relevant to this article. The evaluation sheets invited the students to consider whether the *data visualization exercise* helped each student meet the learning objectives, they did not invite the students to consider *remediation of practice*. It is the

additional comments on the student evaluation sheets alongside tutor in-class observations that are relevant to remediation of practice and how it might be taught. Nevertheless, for clarity of context, the learning objectives are run here.

The learning objectives for the BA journalism module were:

Knowledge:

On completion of this module, the successful student will be able to:

1. Demonstrate how the codes and conventions of journalism can be used creatively and critically in digital production;
2. Evaluate how multimedia production can aid engagement with audiences;
3. Appreciate how practical, financial and legal constraints impact on editorial production.

Skills:

On completion of this module, the successful student will be able to demonstrate:

1. Ability to produce journalistic content using specific media technologies within a time constraint;
2. Working effectively as an individually or/and as part of a team;
3. Responding positively to peer and tutor feedback.

The learning objectives for the MA creative writing module were:

Knowledge:

On successful completion of this module, students will be able to demonstrate knowledge and understanding of:

1. Existing variety of writing platforms and new critical insights into demands particular to different types of writing platforms;
2. A range of established creative methods and techniques that are at the forefront of the academic discipline;
3. Creative process at a level that allows the student to approach complex issues involved in working for different platforms and in different genres systematically and with individuality;

4. The professional and commercial writing landscape at a level that allows the student to identify the strongest combination of techniques and platforms for a chosen message.

Skills:

On successful completion of this module, students will be able to:

1. Autonomously give comprehensive feedback on the work of other students and confident critical judgements on published or performed writers;
2. Revise their own work in response to their own confident critical judgements on their creative and professional work;
3. Apply an established range of narrative devices with originality in ways that optimize the effectiveness of the delivery of their message to selected markets;
4. Present work (orally and visually) to a professional standard.

The evaluation sheets were not part of the assessment. Completing them was optional.

The data visualization exercises required each student to gather data – for example by using hashtags to search social media for comments on particular themes – and then transform that data into a pie chart or bar graph using Excel or other software. To help students understand the requirements and possible outcomes of the exercise, the whole class worked on an initial search for data collaboratively. Storify (<https://storify.com/>) enables users to search hashtagged social media posts, pull them up onto one side of a split screen and ‘curate’ them on the other by moving them about on the screen so that they tell different stories. Using Storify, the results of various searches were projected on the interactive whiteboard at the front of the class.

One student’s assessment of what made the exercise valuable was striking. This student – Student A - used the term ‘sensory’. The exercise could seem at first to be no more sensory than any other exercise that requires students to type at a keyboard and look at a board at the front of the class.

The author’s experience of how it can help when experimenting with new technology to keep old, familiar technology in mind and include physical movement in the learning process informed what tools and classroom furniture were utilized. Previously, the tutor had moved between pieces of fabric when making clothes as a child at home and later between pieces of sound in the form of

strips of magnetic tape when making radio programmes in the BBC Radio Merseyside studios. In the classroom, as well as the computer and the interactive whiteboard, the tutor's tools included a flip chart.

On the screen at the front of the class, the movements of the cursor and of the social media posts as they were rearranged were magnified. The physical positioning and re-positioning of the posts was part of the process of seeing what patterns were emerging. The space of the classroom was used more expansively than usual. As well as a computer at one side of the class and the interactive board at the front, a flipchart at the other side of the room was used by the tutor. Here, diagrams were drawn with marker pen and thoughts resulting from class discussions were noted. The students were invited to use pens, pencils and paper. Alongside such old technology (which was likely to remind of previous practice), students were invited to get phones and tablets out of their pockets and bags and use the computers at their desks.

The students were more active than they might otherwise have been as well, looking at their own screens then looking at the front of the class, moving between computers, tablets and phones, manipulating keyboards and cursors, turning to use pens and pencils. Students tallied up numbers by hand on pieces of paper. On A4 hand-outs, on scraps of paper, in different handwriting (variously spidery, upright, plumply rounded; in blue pen, black pen, pencil), sets of figures began to emerge.

For example, one student who searched the hashtag #OnThisDay found that of 40 posts featuring the hashtag, 15 were on sports, three were on science, for example. The student tallied the findings as they were gathered, noting them down like this:

'SPORTS = IIIIIIIIIIIII	15
SCIENCE = III	3
MUSIC = IIII	4
HISTORY = IIIIIIIIIII	12
OTHER = IIIII	6

	40'

Then, as the student considered whether a pie chart or bar graph would be a better way of representing the findings, the student drew two circles. The student then engaged in counting, with the tip of a pen, in order to begin re-imagining the findings ready to present them as small narratives as a 3-D, multi-coloured graph or pie-chart using Excel software.

This foregrounding of movement was not limited to the classroom. The series of small actions – tallying, counting – came after the student had moved expansively through space and time via a computer, pulling Twitter, Facebook and Instagram posts onto Storify pages.

One of the hashtags experimented with as a group was #ChristmasLights, which brought up a house with a reindeer in lights across its façade. This was at once intimate (someone's house) and posed (a householder is only likely to post a photograph of their home's Christmas lights if he or she is proud of them). Thus students were moving between municipal displays and people's homes across the world, transforming these into bald data using pens on scraps of paper.

Quantitatively, the results of the evaluation sheets were positive. All the students found that the data visualization exercises helped them meet either most or all the module learning objectives. However, while it is clearly of significant value that the students found the exercises relevant and could assess how they had proved helpful, as noted, the learning outcomes are not the main focus here. In the context of this article, what is interesting is how the students began to engage with new media technologies in the classroom. The students' additional comments on the sheets help assess this. There was no discussion during the sessions of affectivity. Yet a number of the additional comments draw attention to the senses. For example:

Student B said, 'Using Data Vis [sic] makes the content more interesting to look at'.

Student C said, 'Understanding the patterns of data does help seeing what structure fits where'.

Student D said that the exercise had helped understanding of 'how online data is coupled together to reflect the opinions of the consumers'.

Data visualizations are about *visualizing* data, so it is not surprising that sight featured in the students' comments. However, whether it is as rows of numbers or written calculations, data is already something that can potentially be seen. In addition, the students' comments above draw attention to movement. Student C was helped by the exercise to see what 'what structure fits where'; Student D talks of the online data 'coupl[ing] together'. The exercises also helped Student D expand consideration to incorporate members of an unknown, unseen audience – the data 'coupled together' to 'reflect the opinions of the consumers'.

Expanding on use of the term 'sensory' in reference to the exercises, Student A said, 'Serving multiple senses makes the audience more engaged with the story'. Similarly, Student E commented, '[Data visualisation] does give me an idea of how to internalize all the data to make something more appealing to the intended audience'. In this comment, as well as awareness of audience, there is articulation of how the exercise might help in the forging of connections between an external, distant audience and the student's interior world. Abstract and potentially alienating concepts had become things that the student could grasp.

None of the component parts of the exercise were particularly challenging for the students. The students were familiar with the idea of using hashtags to search social media. Those who were not already able to make bar graphs and/or pie charts using Excel software quickly learned or found an alternative software online that they could use effectively. Any maths could be done quickly on calculators on students' smart phones. Yet, if there was one thing that helped the students begin to feel comfortable with the exercise, it was the introduction of pens and pencils and pieces of paper. Pens and pencils and bits of paper are old technology. They are familiar, they tie to creative practice and work undertaken in other settings. They seemed to serve as concrete reminders that each student was at the centre of whatever he or she was creating here and now in the class.

Cramer (2014) considers how in some circumstances, 'old' technology (for example a typewriter) represents a postdigital *choice*: 'using the technology most suitable to the job, rather than automatically "defaulting" to the latest "new media" device'. Embedding remediation of practice seemed to help the students regain a sense of agency. It appeared to help give them back a sense that there was not a rigid set of rules beyond their control, but, rather, see that they had *choice*.

Conclusion

Considering the significance for other creative practitioners within their own contexts, he or she may find it helpful, when working to embed unfamiliar technologies in his or her practice, to look back to prior instances of creative practice (which may not involve writing at all). Introducing crayons or a sandwich to the setting that involves new technology, for example, or breaking from the setting completely to fix the gears on a bicycle could help establish a useful sense of choice and agency. Recalling how it was to get to grips with, for example, drafting a film script when novels were previously the practitioner's focus, or learning how to play guitar, might help, suggesting techniques that could be remediated for use in this new setting and foregrounding affective aspects of creative practice.

The idea that a writer's creativity is tied to a particular machine and a particular set of writing habits is a potent cultural concept. The writer Amos Oz (1999: 3) refers to 'scribbling' on and 'crumpling' pages as an integral part of the process of starting to write a story. Dickens was a man of strict writing habits throughout his life. He could not start until particular objects were arranged on his desk; 'He used a goose-quill pen with blue (or occasionally black) ink. He wrote on blue-grey slips of paper, eight and three quarter inches by seven and one quarter inches' (Ackroyd: 562).

In the film *Goosebumps* (Letterman, 2015), a writer's characters have come to life and are wreaking havoc. To save the town, the writer (children's novelist R. L. Stine, played by Jack Black), must write all the rampaging characters safely back into a manuscript. 'I need that Smith Corona!' declares the writer. 'Every story I've ever written has been on that typewriter!' - and the

Smith Corona is carried round for the rest of the film, a happy resolution dependent on it. Indeed, the film's happy ending is marked by the sound of a typewriter key hitting a final full stop and paper being pulled out.

We can choose today between a seemingly infinite number of makes of phone, tablet and computer; adverts and personalised promotional emails invite us to upgrade our technology. This article has considered how the postdigital age can challenge the possibility for writers of growing attached to particular tools and practices. It surrounds writers with audience in ways that can feel undermining to the creative process.

This article has considered too how remediating creative practice can enable a writer to engage effectively and productively with new media technologies. It is to be hoped that this article will help aspiring and practicing writers negotiate the production of narratives in a postdigital age, whether for a single multimodal output such as a website or for separate modes of dissemination sequentially, for example Twitter then a podcast. As regards how remediation of creative practice can be taught, emergent findings have been presented here. There is more research to be done in this area. It is an exciting time for creative writing practice and research.

Hazel Smith (2004) - discussing how 'technowriters have more fluid identities than page-based writers' as they embrace the 'new writerly and readerly freedoms which dissolve textual invincibility' - notes that 'fruitful tensions' can arise when 'writing and programme, language and other media, the screen and the page' interact. Digital developments are, Harper says, 'about the human experiences they initiate, support and empower' (8).

'Unfortunately, it is the extrinsic goals of creative writing, not the intrinsic ones, that have been promoted and most discussed culturally in the modern period – the period in which the sale of products emerging out of creative writing become tantamount', says Harper (9-10). Rather, he suggests, new media, or, 'synaptic' technologies, as he frames them, free us to immerse ourselves in enjoying the process of creation.

Social media and new technology can make us feel as if we have welcomed 'frenziedness into our souls' (Nicholas Carr in Leahy and Dechow, 2015) and may consequently make us feel, as Wilkins (2014) shows, as if we are under siege (forced to produce material constantly to the timetable of others). However, the postdigital age also frees us up to immerse ourselves in the experience of creating. The contention of this article is that the remediation of creative practice can help enable us to embrace such possibilities. Writers talk of stepping into worlds they are creating as they write stories. This article suggests that we need to step into who we are at different stages of producing work.

6,700 words

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